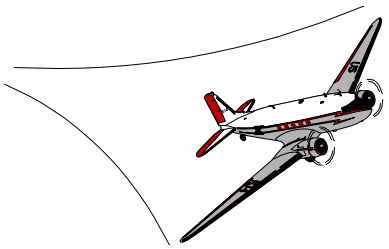
SPECIAL AIRWORTHINESS INFORMATION BULLETIN



U.S. Department of Transportation

Federal Aviation Administration

Aircraft Certification Service
Washington, DC

CE-03-24
February 19, 2003

We post SAIBs on the internet at "av-info.faa.gov"

This is information only. Recommendations are not mandatory.

Introduction

This Special Airworthiness Information Bulletin alerts you, an owner or operator, of **Pratt & Whitney Canada PT6A-60A, -65B, -65R, -65AR, -67B or -67R** engines, to the possibility of engine failure due to deterioration of the number one engine bearing. These engines are installed on, but not limited to, Raytheon (Beech) 1900, Raytheon B300 (Super King Air 350), Short Brothers Limited SD3-60 (Shorts 360), and Pilatus PC-12/45 aircraft. This deterioration is apparently caused by electrical discharge damage (EDD), although the underlying cause has not yet been identified. To date, this condition has only appeared on engines equipped with Goodrich (formerly TRW Aeronautical Systems, Lucas Aerospace) starter-generator models 23078 and 23085, but similar design starter-generators from other manufacturers would be expected to perform in a like manner. *This problem has not been experienced with other models in the PT6A-60 series with similar starter-generators installed.*

Background

The Australian Transport Safety Bureau investigated the matter in connection with five such failures which one of their operators experienced with Shorts 360 aircraft between November 1995 and August 2000. They found that there had been a total of 17 failures apparently caused by electrical discharge damage of the number one bearing in the PT6A worldwide fleet. There has been a recent failure of a PT6A-67B engine apparently due to EDD in a single-engine Pilatus PC-12/45 aircraft.

Evidence suggests that an electric current from the starter-generator gear shaft passes through the accessory gear train and the compressor splined coupling. It appears that the electrical current initiates spalling damage to the engine bearing. However, the root cause of the problem has not yet been identified. These starter-generators (and other similar design Goodrich starter-generators) used in other aircraft installations have not experienced the EDD bearing problem. There may be other causal factors such as whether the starter-generators had been rebuilt, and, if so, the source of any replacement parts used and the specific rebuild procedures that were followed.

Recommendation

Based on current information, the FAA is recommending that owners and operators of aircraft with the specified engines pay particular attention to following the starter-generator manufacturer's component maintenance manual. In the case of Goodrich starter-generators, the relevant document is TRW Starter/Generator Maintenance Manual 23700 which includes periodic field cleaning and resistance checks that will prevent dust build up and detect a decrease in armature leakage resistance or a hard short.

In addition, any aircraft manufacturer service bulletins concerning proper grounding of the starter-generator should be followed to minimize the possibility of EDD. We also advise that you follow the Pratt & Whitney Canada service bulletins regarding the periodic checking or analysis of engine oil to detect debris which may provide an early warning of bearing deterioration.

For Further Information Contact

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